

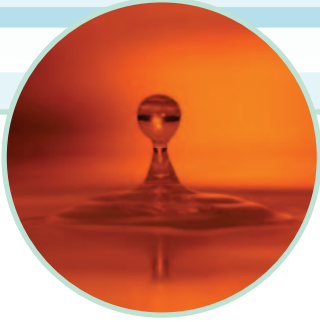
WITH  
AN EYE  
FOR  
QUALITY



TOWN OF  
BLACKSBURG  
WATER  
REPORT

2004





The Town of Blacksburg and the Blacksburg-Christiansburg-VPI Water Authority place the highest priority on providing our citizens with quality drinking water.

This partnership is proud to report that your drinking water is safe and meets all federal and state requirements.

let's talk  
about  
**YOUR**  
water

# where your water comes from

Blacksburg's water is taken from the New River and pumped to the Blacksburg-Christiansburg-VPI Water Authority treatment plant located on Route 114. The Water Treatment Facility utilizes a conventional process to treat surface water from the river. Water is first chlorinated and then several treatment processes including coagulation, flocculation, sedimentation, and filtration are used.

From there the treated water is transmitted through a series of pipes, tanks and pump stations located along Routes 114 and 460 to the Town's water storage tanks, and then to your tap.

Last year Blacksburg used an average of 3.5 million gallons of water a day.



Protecting our nation's water sources is absolutely essential to preserving our country's way of life and the future of our children. Here are some things you can do:

**Use** and dispose of harmful materials properly. Do not dump it on the ground.

**Do not** overuse pesticides or fertilizers.

**Create** a wildlife habitat in your backyard, workplace or school yard. Join the Wildlife Federation's Backyard Wildlife Habitat Program.



# protecting OUR water sources



Recently the Town of Blacksburg completed construction of a new 2.0 million gallon water tank located in Highland Park on Palmer Drive. This tank is one of five water storage tanks in the Town totaling approximately 5.5 million gallons of water. Plans are under design for construction of two more water tanks on the Highland Park site which will provide an additional 2.0 million gallons of water. Upon completion of these tanks, the Town's total water storage will be approximately 7.5 million gallons.

# water storage



# 2004 water quality data

This table shows summarized the results of water monitoring for the period of January 1-December 31, 2004. Testing is conducted at the Blacksburg-Christiansburg-VPI Water Authority at least 249 times a day, 7,757 times a month, and 93,602 times a year. The Authority routinely monitors for 76 regulated, 48 unregulated, and many non-regulated contaminants in your drinking water. Any contaminants not listed in the table were not detected in the treated water.

**Non-Detects (ND)** laboratory analysis indicates that the constituent is not present.

**Parts per million (ppm) or Milligrams per liter (mg/l)** one part per million corresponds to one minute in two years or a single penny in \$10,000.

**Parts per billion (ppb) or Micrograms per liter** one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

**Picocuries per liter (pCi/L)** picocuries per liter is a measure of the radioactivity in water.

**Nephelometric Turbidity Unit (NTU)** nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**Action Level (AL)** the concentration of a contaminant that, if exceeded, triggers treatment or other requirements which a water system must follow.

**Treatment Technique (TT)** a required process intended to reduce the level of a contaminant in drinking water.



**Maximum Contaminant Level or MCL** the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**Maximum Contaminant Level Goal or MCLG**

the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG 's allow for a margin of safety.

**Milirems per year(mrem/yr)**

A measure of radiation absorbed by the body.

**Maximum Residual Disinfectant Level Goal or MRDLG**

the level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Maximum Residual Disinfectant Level or MRDL** the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

## DEFINITIONS

### Regulated Contaminants

Contaminant	In Compliance Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
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### Microbiological Contaminants

Turbidity*	Y	0.09* 100%	NTU	n/a	TT, 1 NTU maxTT, ≤ 0.3 (95% of the time)	Soil runoff
Total Organic Carbon	Y	1.05 range 1.0 to 1.54	n/a	n/a	TT, met when ≥ 1	Naturally present in the environment
Total Coliform Bacteria	Y	1 sample indicated the presence of bacteria during July	n/a	0	1 positive monthly sample	Naturally present in the environment

### Radioactive Contaminants

Combined Radium (sample date 1-14-02)	Y	1.4	pCi/l	0	5	Erosion of natural deposits
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### Inorganic Contaminants

Copper (Test results are from the 2002 round of testing)	Y	90th percentile = 0.082 and # of sites above Action Level=0	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Fluoride	Y	0.70	ppm	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate/Nitrite	Y	0.83 Range 0.67 to 0.83	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

### Volatile Organic Contaminants

Chlorine	Y	0.86 Range 0.14 to 2.09	ppm	MRDLG=4	MRDL= 4	Water additive used to control microbes
HAA5(Haloacetic Acids)	N	64 Range 35 to91	ppb	n/a	60	By-product of drinking water disinfection
TTHM [Total trihalomethanes]	Y	76 Range 25 to 113	ppb	n/a	80	By-product of drinking water chlorination

**\*Turbidity** is a measure of the clarity of the water. EPA requires reporting of the highest single turbidity result measured during the 2004 year. Out of approximately 20,000 tests, the highest measurement was 0.11 turbidity units and the monthly percentage of samples meeting the requirements was 100% every month in 2004.

**Lead** in drinking water is rarely the sole cause of lead poisoning, but it can add to a person's total lead exposure. All potential sources of lead in the household should be identified and removed, replaced or reduced. Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (1-800-426-4791).

**Cryptosporidium** (crypto) is a microbial parasite found in surface water throughout the U.S. Although filtration removes cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Although the Water Authority is not required to test for cryptosporidium, it was decided to still do so. Monitoring of source water has indicated the presence of these organisms. Current test methods do not determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. These individuals are encouraged to consult their doctor regarding appropriate precautions to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

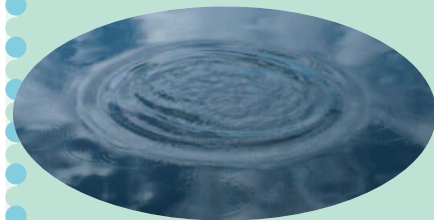
**MCL's** are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink two liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

EPA and CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the EPS Safe Drinking Water Hotline (800-426-4791).

## Water supplied

by the Blacksburg-Christiansburg-VPI Water Authority during the 12-month monitoring period from October 1, 2003 - September 30, 2004, exceeded the four-quarter Primary Maximum Contaminate Level running average of 0.060 mg/l for Total Haloacetic Acids(HAA5) contained in the Commonwealth of Virginia/State Board of Health Waterworks Regulations. The results indicated that the four quarter running annual average HAA5 concentration was 0.064 mg/L and 0.062 mg/L respectively. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

During the 12 month monitoring period of January 1, 2004 - December 31, 2004 the running average for HAA5 was not exceeded. To correct the problem the Water Authority reduced the chlorine added to the system and flushed the system daily where needed.



## Source Water Assessments

A source water assessment of the Blacksburg water system was conducted in 2002 by Draper Aden and Associates. The source was determined to be of high susceptibility to contamination using criteria developed by the State of Virginia and its approved Source Water Assessment program. Details of this report may be obtained from the Blacksburg-Christiansburg-VPI Water Authority.

**sources** of drinking water (both tap water and bottled water) include rivers, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Examples of contaminants that may be present in source water include:

**Microbial contaminants** such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

**Inorganic contaminants** such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

**Pesticides and herbicides** which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

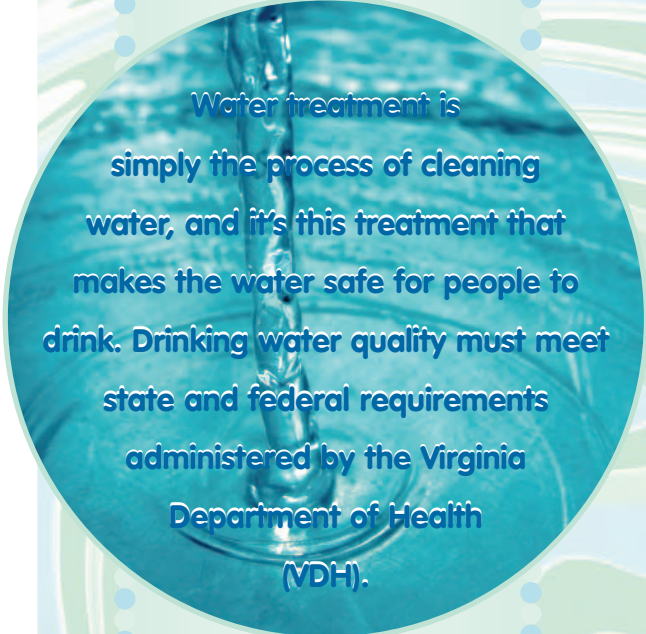
**Organic chemical contaminants** including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can come from gas stations, urban storm water runoff, and septic systems.

**Radioactive contaminants** which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health. Water from surface sources is treated to make it drinkable while groundwater may or may not have any treatment. Drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. It's important to remember that the presence of these contaminants does not necessarily pose a health risk.

**Environmental Protection Agency**  
**Safe Drinking Water Hotline (800-426-4791)**

# water quality



Water treatment is simply the process of cleaning water, and it's this treatment that makes the water safe for people to drink. Drinking water quality must meet state and federal requirements administered by the Virginia Department of Health (VDH).

# and your health



# chloramination

## YOUR WATER IS CHANGING

### **BEGINNING JUNE 27, 2005**

the Blacksburg-Christiansburg-VPI Water Authority will change its method of disinfecting drinking water, from free chlorine to chloramination, a process in which ammonia is added to chlorinated water. The change is being made to comply with increasingly stringent federal and state regulations on levels of disinfection by-products in drinking water.

Water supplied to customers at Virginia Tech, and the Towns of Blacksburg and Christiansburg, will be affected by this change, as well as some Montgomery County residents on public water systems that purchase water from the Towns.

Changing the water disinfection process to chloramination will greatly reduce the likelihood of by-product

formation such as HAA's, and compliance will be easier to maintain. The Water Authority and the Town will continue to test and monitor the water, and investigate any additional treatment processes that would help to maintain water quality.

Chloraminated water is perfectly safe for drinking, cooking, bathing, and other daily uses. However using chloraminated water for kidney dialysis may require a change in the way water is pretreated and patients should consult with their doctor prior to June 27. Likewise, chloramines can also be harmful to aquatic life.

Chloramines require a change in the way water is dechlorinated for aquariums and ponds. Fish enthusiasts will need to dechlorinate water before using it for fish tanks, outdoor ponds and other aquatic life.



**For more information visit <http://www.h2o4u.org>**



Water Authority meetings are held the third Wednesday of each month at 4:00 p.m., at the Water Treatment Plant, 3355 Peppers Ferry Road. For more information on your water system visit the [www.h2o4u.org](http://www.h2o4u.org)

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